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Notice of Allowability

Application No.

09/986,231

Examiner

Mary J. Steelman

Applicant(s)

BUSH ET AL.

Art Unit

2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/19/2005.
2. ☒ The allowed claim(s) is/are 1-52.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


TUAN DAM
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

1. Examiner withdraws prior Final Office action. Allowable subject matter had been indicated and allowance was pending receipt of a Terminal Disclaimer. In view of Terminal Disclaimer received 8/19/2005, the prior double patenting rejection is hereby withdrawn.

Allowable Subject Matter

2. The following is a statement of reasons for allowance:

As Applicant has pointed out on page 17, 5th paragraph of Remarks, in reference to claim 1, prior art of record does not teach or suggest a method of suspending a mutator code (See Specification page 2, lines 17-18) at a safe point (See Specification page 3, lines 4-5) with a specific arrangement when executing encoded parallelism: “code that uses one of the component operations of an instruction to selectively trigger, based on a settable state of a processor, suspension of mutator code at a safe point that coincides with the instruction.” Similar limitations regarding parallel execution are recited in independent claim 47.

As Applicant has pointed out on page 19, 4th paragraph, in reference to claim 15, prior art of record fails to disclose: “use of an instance of an instruction coinciding with the safe point, wherein the instruction instance references storage encodable with an exception triggering value to trigger an exception for suspending the mutator at the safe point” or “in response to a start garbage collection event, encoding the storage with the exception triggering value, and thereafter executing the instruction instance, thereby triggering the exception; and in response to the exception, suspending the mutator at the safe point.”

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Regarding independent claim 21, prior art of record fails to disclose “an instruction sequence including an operation that coincides with a safe point... wherein the operation is encoded in an otherwise unused position in the instruction sequence... executed at least partially in parallel... the operation referencing a state that selectively triggers suspension of the instruction sequence at the safe point.” These limitations are a broader version (**‘an operation that coincides with a safe point... encoded in an otherwise unused position in the instruction sequence’**) of allowed claims of the parent case, US Patent 6,308,319 B1 to Bush, which more specifically called for **“mutator code including an instance of a delay slot instruction coinciding with said safe point”** (emphasis added)

The limitations are similarly recited in remaining independent claims 25, 32, 35, and 42. Such limitations, similarly recited in all independent claims (1, 15, 21, 25, 32, 35, 42, and 47), provide efficient coordination mechanism for garbage collection in multi-threaded code. These limitations are not present in the prior art of record and would not have been obvious. Thus dependent claims 2-14, 16-20, 22-24, 26-31, 33-34, 36-41, 43-46, and 48-52 are also allowed.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Steelman, whose telephone number is (571) 272-3704. The

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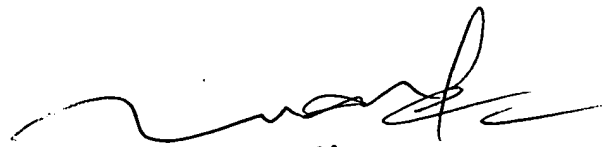
examiner can normally be reached Monday through Thursday, from 7:00 AM to 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached at (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned: 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mary Steelman

09/26/2005



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